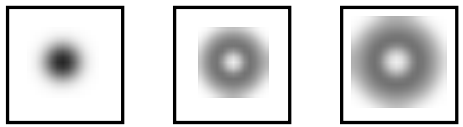
Assume an aperture, a set of spiral phase diversities and Zernike diversities:

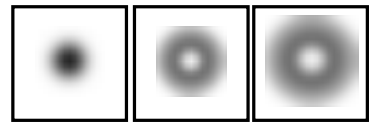
$$A(x,y), \qquad \psi_l = arg(e^{il\theta}), \qquad Z_4 = \pm 0.5, 0$$

Measure d_j^l for all diversities.

Generate $|u_j^l|^2$ for all j, l assuming current phase guess ϕ.



Set of experimental images with aberrations inherent to the optical system.



Set of simulated images with same properties as experimental plus current ϕ.

Evaluate the objective function:

$$L(\phi) = \sum_{l=0}^{L} \sum_{j=0}^{K} \sum_{u,v}^{M,N} \left| d_j^l - |u_j^l|^2 \right|^2 .$$

Has L reached convergence?

No

Use GSA to propose a new guess of ϕ.

Yes

Done! ϕ is the phase that best describes the aberrations of the nominal system.